Date: March 12, 2003

METS
Testing and Technology Services
Electrical Testing Branch
Electrical QA Inspection Program Team Charter

Electrical Quality Assurance Inspection Program Team

Mission Statement:

To provide Quality Assurance (QA) testing of Contractor-furnished electrical materials that are being incorporated into State construction projects. These materials will be tested to insure that they are in compliance with the Caltrans Standard Plans and Specifications, and the Contract plans and special provisions. Additionally, this QA process is intended to monitor the Quality Control (QC) efforts of manufacturers of these materials in order to ensure that they meet the highest standards of quality.

Some of these materials include but are not limited to:

- Service Equipment Enclosures
- Telephone Demarcation Cabinets (TDC)
- Traffic Signal control indications
- LED Extinguishable Message Signs (EMS)
- Microwave Video Detection Systems (MVDS)
- Closed Circuit TV (CCTV) Systems
- Highway Advisory Radio Systems (HAR).
- Overhead Sign and Highway Lighting
- Conduit, conductors and pullboxes

Management Sponsor:

Paul Benson, Chief, Office of Testing and Technology Services

Team Members:

Team Leader:

Christopher Tan, Chief, Electrical Testing Branch

Team Members:

John Castro, Transportation Engineer, Electrical
Ken Groza, Transportation Engineer, Electrical
Dan Driver, Electrical Engineering Tech III
Mike Fuentes, Electrical Engineering Tech I

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Background:

Caltrans construction projects incorporate hundreds of types of contractor-furnished electrical materials necessary to operate signalized intersections, Traffic Management Centers (TMC's), traffic surveillance systems, etc. Caltrans has developed specifications and plans (Caltrans Standard Plans and Specifications) that govern the functional characteristics, safety features and level of quality of these materials. One of the specification requirements is that the manufacturers must have an active QC program to ensure that their products meet these specifications. Historically, despite the best of intentions, manufacturers will produce products that fall short of our requirements. In order to police the QC efforts of these manufacturers, Caltrans must have an active QA program. This QA program is necessary to ensure that all materials incorporated into Caltrans projects operate correctly and safely with a minimum of startup defects. Another important reason to have a Caltrans operated QA program is the Federal Highway Administration's (FHWA) Federal-Aid Policy Guide, Title 23 – The Code of Federal Regulations. This code requires that each State Highway Agency develop a quality assurance program, which will assure that materials and workmanship incorporated into each Federal-aid highway construction project are in conformity with the requirements of the approved plans and specifications. Additionally, Assembly Bill AB 2275, passed May 31, 2000, mandates that Caltrans assign qualified state employees to perform inspection and testing of materials, including both commercial and fabricated material if the contract does not call out for contractor performed QC.

Therefore the Electrical QA Inspection Program will fulfill Federal and State mandates, ensure timely completion of projects and save the taxpayer money.

Goals:

- Full implementation of Electrical QA Testing Program into northern and central districts by end of FY01/02 and statewide by end of FY03/04. This will provide for inspection and testing of contractor furnished electrical materials versus accepting these materials on certificates of compliance.
- Improve the quality of the materials being incorporated into State construction projects.
- Reduce construction delays associated with non-compliant materials being used on construction projects.
- Demystify the source/QA inspection process and develop a better working relationship with Caltrans Construction personnel.
- Provide a point of contact and develop a better working relationship with manufacturers, contractors and suppliers.
- Provide informational presentations to districts.
- Develop standardized inspection methods. These methods include, but are not limited to, the procedures used to test materials and the criteria used in determining what constitutes failed and accepted materials.
- Develop in-house technical expertise in order to assist the districts and headquarters personnel and to provide a centralized focal point regarding issues pertaining to specification compliance. This will be an ongoing effort.
- Develop and update California Test Methods.

- Develop website that will provide useful information for internal and external customers.
- Develop process for testing new and current transportation electrical materials and determining its applicability to the Caltrans mission.

Authority:

The Electrical QA Inspection Program Testing Team tests contractor-furnished electrical materials for compliance to the Construction Project plans and specifications as well as the Caltrans Standard Plans and Specifications. The team's services are limited to determining what materials meet and what materials fail to meet those criteria, and then recommending either accepting or rejecting those materials use to the Caltrans Construction Resident Engineer (RE). The RE then has the prerogative of abiding by the findings or not.

The Electrical QA Inspection Program Testing Team will develop California Test Methods and Test Procedures used to determine specification compliance. The team may solicit input from the various manufacturers, but it is up to the team to develop independent testing procedures. The team will also be in a role of recommending changes, additions and deletions from the various specifications to which we test.

Resources:

The Electrical QA Testing Team currently has two (2) Engineering PY's, two (2) Technician PY's and two (2) Student Assistants, in order to carry out its Northern and Central region inspection tasks. In order to fully meet its statewide goals, additional PY's will be required.

A full test lab will be required when the southern districts are deployed. This lab will equipped with temperature/humidity environment chambers, various pieces of general-purpose electronic test equipment, light tunnel, shake tables, and photometric testing capabilities. Resource support in this area has been adequate to date.

The training requirements necessary will mostly rely on on-the-job training. In addition, Caltrans sponsored training programs will also be sought. Outside, vendor provided training will also be researched, in order to ensure that personnel have the best tools at their disposal.

Sponsor Commitment:

The team leader and the sponsor will meet monthly to discuss the progress of the program. The team and team leader will submit a quarterly report that will indicate by percentage, the failure rates and acceptance rates of the materials tested. These numbers will then used to determine if necessary changes are required, either to the process, or to the funding levels. Additionally any significant accomplishments to streamline the inspection process will also be outlined. By using the feedback that the team provides, the sponsor will generally have a good idea if more PY's are needed, if more training or equipment is needed, or if the program needs to redirect its efforts.